

Title (en)

Powder feeding system for a laser build-up welding apparatus

Title (de)

Pulverfördersystem für eine Laserpulverauftragsschweißvorrichtung

Title (fr)

Système d'alimentation en poudre pour un dispositif laser de soudage pour le rechargement par apport de poudre

Publication

EP 2712698 A1 20140402 (DE)

Application

EP 12186767 A 20121001

Priority

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Abstract (en)

The powder feeding device comprises a first powder reservoir (2), a second powder reservoir (3), a first powder conveying device, and a second powder conveying device (5). The first powder conveying device is arranged to transport powder from the first reservoir to the second powder reservoir. The second powder conveying device is arranged to transport the powder from the second powder reservoir to a powder transfer location. The first powder conveying device is arranged to maintain a constant level of the powder in the second powder reservoir. The powder feeding device comprises a first powder reservoir (2), a second powder reservoir (3), a first powder conveying device, and a second powder conveying device (5). The first powder conveying device is arranged to transport powder from the first reservoir to the second powder reservoir. The second powder conveying device is arranged to transport the powder from the second powder reservoir to a powder transfer location. The first powder conveying device is arranged to maintain a constant level of the powder in the second powder reservoir, and is associated with a control loop, which is designed to detect and to adjust the powder transported by the first conveying device in a predetermined period depending on an amount of filling level of the powder in the second powder reservoir. The first powder reservoir is arranged with a mixing device, which is designed to mix the powder in the first powder reservoir. The first powder conveying device includes a pusher, is adapted to move the powder from the first powder reservoir to the second powder reservoir. The second powder conveying device comprises a screw conveyor, which is adapted to rotate about a longitudinal axis of the screw and to convey the powder onto a rotating thread (10) to the transfer location to lift the powder over a height difference. The screw conveyor comprises a scraper, which is arranged to strip a portion of excess powder from the rotating thread so that the excess portion of the powder falls back into the second powder reservoir. The feeding device further comprises a third powder conveying device (12), which is arranged to transport the powder from the transfer point to a laser cladding welding device. A maximum storage volume of the first powder reservoir is ten times as large as a maximum storage volume of the second powder reservoir.

Abstract (de)

Es wird eine verbesserte Pulverzuführeinrichtung (1) für eine Laserauftragsschweißvorrichtung eingeführt. Die Pulverzuführeinrichtung weist ein erstes Pulverreservoir (2), ein zweites Pulverreservoir (3), eine erste Pulverfördervorrichtung (4) und eine zweite Pulverfördervorrichtung (5) auf. Die erste Pulverfördervorrichtung (4) ist dazu ausgebildet, ein Pulver von dem ersten Pulverreservoir (2) in das zweite Pulverreservoir (3) zu transportieren. Die zweite Pulverfördervorrichtung (5) ist dazu ausgebildet, das Pulver von dem zweiten Pulverreservoir (3) zu einer Übergabestelle (6) zu transportieren.

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

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